

# SCIENCE FAIR CENTRAL

## MAKE. CREATE. EXPLORE.



## MARSHMALLOW LAUNCH

### What We Want to Find Out

**How far can a catapult launch different types of “payload”?**

### Procedure

Using three of the large marshmallows and three of the skewers, form a one-dimensional triangle. Lay it on a flat surface, such as a table. Now, stick three more skewers into the three marshmallows to form a pyramid. Join the three skewers on top with the fourth marshmallow, and slip the rubber band loosely around the top marshmallow. Tape the plastic spoon onto the remaining skewer. Then, slip the spoon and skewer through the rubber band and into one of the marshmallows at the pyramid's base. You now have a catapult! To launch your ammunition, put mini-marshmallows, oat-ring cereal, or any other small, light object into the plastic spoon. Bend the spoon backward against the rubber band, and let it go! To measure how far your ammunition goes, design a target with foam board and reusable plastic stencils or aim for a basket or the inside of a hula hoop.

### Science Behind the Fun

This type of catapult is known as a Mangonel. In ancient times, a huge version of the Mangonel was used to launch objects over the walls of a castle or fort. The tension caused by pulling the spoon on its skewer against the rubber band stores energy. That energy is released in the form of an arc when you let it go. If you shoot a mini-marshmallow using your catapult, you will notice that it doesn't fire straight ahead. The shape of your catapult arm will cause it to launch up and out. And the force of your ammunition will depend on its mass and how fast it goes.

### Materials

- Four large marshmallows
- Seven bamboo skewers, with the sharp tips snipped off
- A thin rubber band; a plastic spoon
- Masking tape
- “Ammunition” such as mini-marshmallows, oat-ring cereal, or even small balls of paper; 1 sheet of foam board; decorative elements

### Tips

You may want to make your catapult the day before you use it. The marshmallows will harden and give you a firmer base for launching. You can also use the masking tape or other adhesives to strengthen the joints where the marshmallows meet the skewers.

### Still Curious?

Students in Yarmouth, Maine, not only learned all about catapults. They are teaching others, too, [at this site!](#)

